

Thermoflex

HEATING SPECIALTIES

GRINNELL COMPANY



INC.



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Thermoflex

● Thermoflex Specialties

Thermoflex Heating Specialties consist of Radiator Traps, Blast Traps, Packless Radiator Inlet Valves, Alternators, Vent Traps, Damper Regulators, Lift Adapters, Compound Gauges and Strainers.

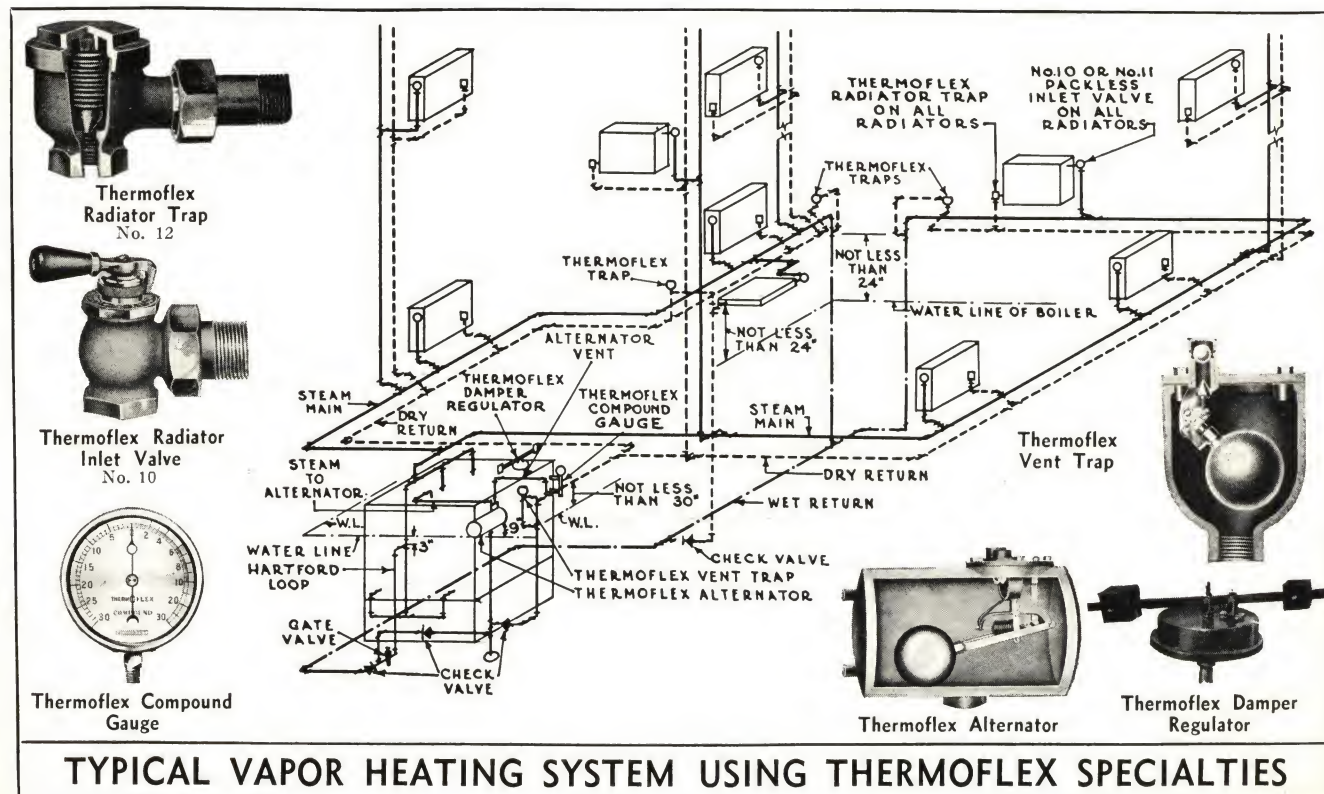
They are used on all forms of pressure steam heating, vapor and vacuum systems, and on steam systems for the generation of heat for industrial purposes of great variety.

The uses and adaptability of Thermoflex Heating Specialties are set forth in the following pages by diagrams and descriptions together with full information as to sizes, capacities, etc.

● Application of Thermoflex Specialties to Heating Systems

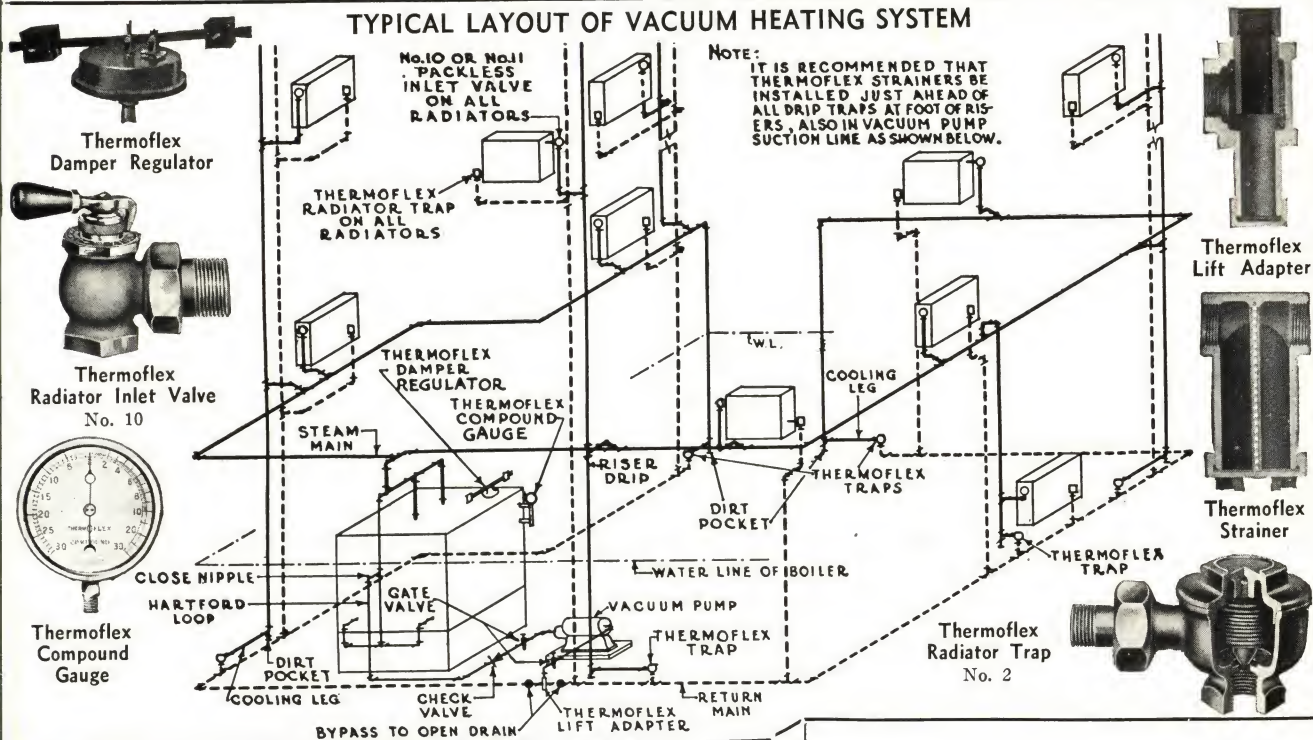
In the control of heat in steam heating systems, heat is being transmitted at points where condensation takes place, heat transmission and condensation vary in a certain proportion, and condensation in a system tends to create a vacuum and this tendency, under proper control, accelerates the flow of steam to replace it. Conditions which facilitate the flow of steam and cause it to condense only where heat is required, effect heating efficiency and economy of fuel consumption.

Thermoflex Specialties are designed to meet these conditions. Accompanying drawings show correct application to vapor, vacuum and pressure heating systems.

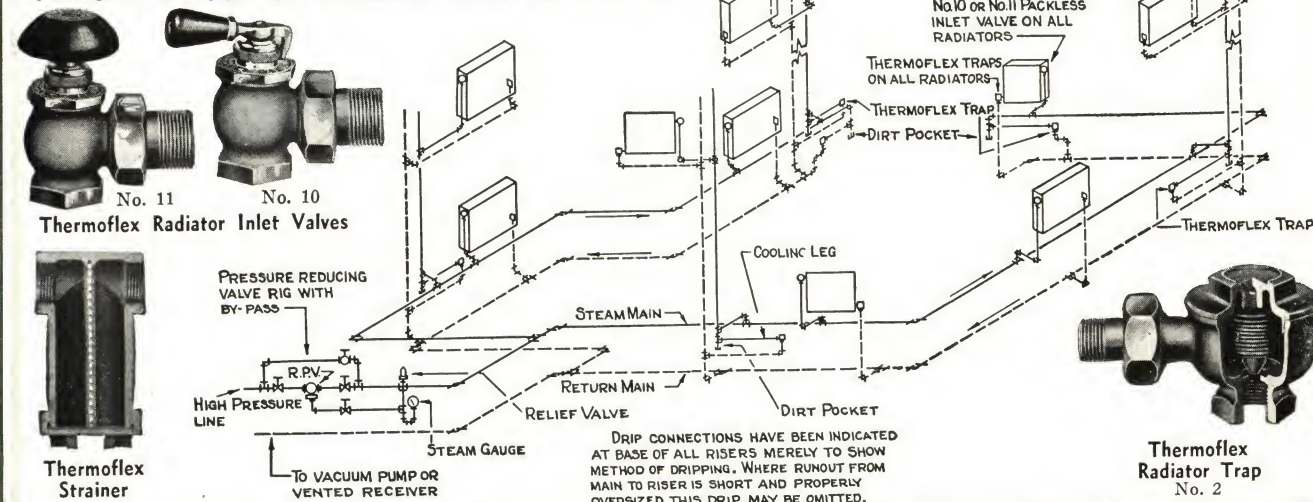


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TYPICAL LAYOUT OF VACUUM HEATING SYSTEM



TYPICAL LAYOUT OF PRESSURE HEATING SYSTEM



TYPICAL VACUUM & PRESSURE HEATING SYSTEMS USING THERMOFLEX SPECIALTIES

TRAPS AS APPLIED TO GRINNELL THERMOLIERERS

Typical Connections for Thermoliers for Vacuum and Vented Return Gravity, Heating Systems.

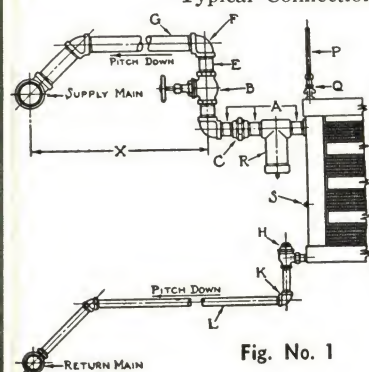


Fig. No. 1
For equipments where distance "X" is less than 10 ft.

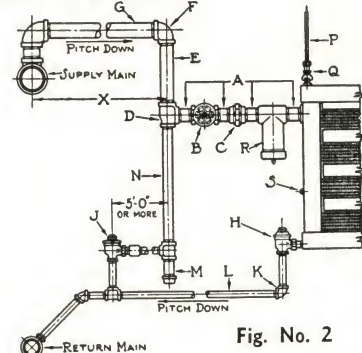
Fig. No. 2
For equipments where distance "X" is more than 10 ft.

*SCHEDULE OF TRAPS "H" FOR THERMOLIERERS

Thermolier	100-100-A	200-200-A	300-300-A	400-400-A	600-600-A	800-800-A	1200-1200-A	1600-1600-A
Size	½ in.	½ in.	¾ in.	¾ in.	¾ in.	¾ in.	1 in.	1 ¼ in.
Trap No.	2	2	2	2	3 or 4	3 or 4	4	4

*Due to patented Internal Cooling Leg in the Thermolier, the above recommended trap sizes when used with Thermoliers have greater capacity than their standard rating would otherwise allow.

Note: Trap "J" should be ½ in. in all cases.



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THE MANUFACTURE OF THERMOFLEX TRAPS

Exacting Standards

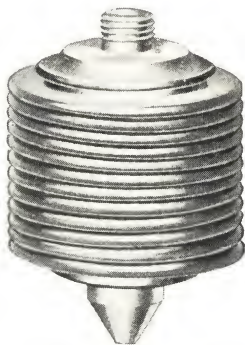
After fifty years of varied heating experience with both low and high pressure systems, in which every known type of trap has been employed, Grinnell Company has discovered the one trap which meets its exacting standards of manufacture and performance. This

trap, together with other heating accessories employing the same principles, is now offered by Grinnell Company as exclusive distributor. This assures Grinnell service and engineering co-operation to those who wish to avail themselves of it.

The Vital Part of Thermoflex Traps—The Bellows

● Description

The Thermoflex is distinguished from all others by its Hydron Bellows—the heart of the trap. The bellows are formed by internal hydraulic pressure only. Hence it is tested automatically in the process of making to

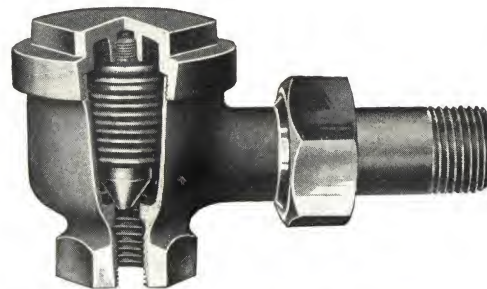


The Hydron Bellows

several hundred pounds pressure—many times the recommended working pressure. The outstanding advantages in construction and operation of the Hydron Bellows are discussed below.

● Operation

The principle in the operation of the Hydron Bellows is the opening and closing of the port by thermostatic action. When air or water is present in or enters the trap the bellows contracts, thus opening the outlet port, permitting the air and water to escape into the return line. Upon the entry of steam into the trap the bellows expands, seating the valve and preventing the escape of steam into the return line. The automatic action assures free and rapid venting and a radiator filled with steam at all times.



Showing Position of Bellows in Trap

Structural Features

With the Hydron process, the end fittings are attached to the tubing before the hydraulic forming of the bellows so that not only is the tubing itself proof-tested in the making, but the same thing is true of the one soldered joint. Any weakness of any nature whatever, either in the tubing or in the soldering of the fittings, will permit the internal pressure to rupture the tubes and break open, thereby destroying the defective unit before it ever becomes a bellows.

Filling with Volatile Liquid—Another advantage of the Hydron Bellows lies in the development of a new and efficient patented method of filling and sealing, which renders practically impossible any loss of the volatile liquid through the filling passage.

High Quality of Tubing Used—Owing to the patented hydraulic manufacturing process, tubes of exceptionally high quality are necessary. Tubes which are suitable for the average bellows cannot be used in making the Hydron, as the hydraulic method requires that the walls of the tubes be uniform in wall thickness and entirely free from surface imperfections, impurities, hard spots, pin holes, or other hidden defects.

Such tubing has been developed only by the rigid control of every manufacturing operation, from the melting and casting into the ingot of the virgin metals, to the final drawing and finishing operation.

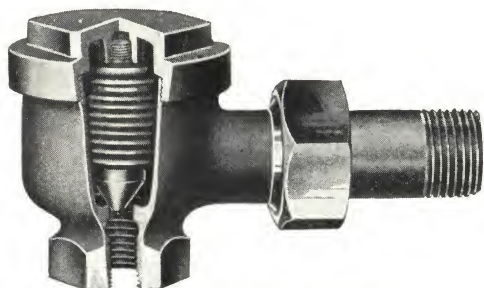
From drawn tubing of such high quality as a foundation, the Hydron is made, and while the original cost of such tubing is considerably more, the forming process used in making the bellows is so much more economical that we are able to offer the Hydron Bellows at no greater cost than the ordinary bellows.

The high internal forming pressure permits the metal to flow freely and without restriction, which materially lengthens the life of the Hydron Bellows.

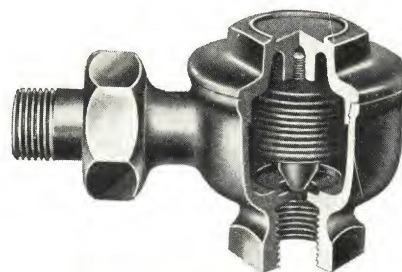
A further advantage of the Hydron is its entire freedom from tool marks or scratches since it is formed without rolling, rubbing, or spinning action of any kind. The result is that the metal in the finished bellows is remarkably uniform in thickness, metallurgical structure, and physical properties throughout every part of each convolution. This is absolutely essential to a good bellows and is a feature exclusive with the Hydron.

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RADIATOR TRAPS



Radiator Trap No. 12—Angle



Radiator Trap No. 2—Angle

Radiator Traps No. 12 and No. 2

Specify For—Pressure steam heating (up to 25 lb.) vapor, vacuum and all systems where traps are used, on every radiator outlet. Also for drips on drop-feed run-outs.

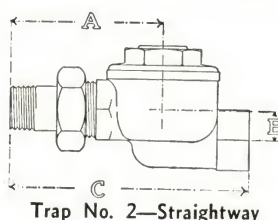
Models—No. 12 is made in angle, right-hand corner and left-hand corner patterns, one size only, $\frac{1}{2}$ -in. inlet— $\frac{1}{2}$ -in. outlet.

No. 2 is made in angle, straightway and offset patterns (for offset, see Page 5) and in two sizes, $\frac{1}{2}$ -in. inlet, $\frac{3}{4}$ -in. outlet and $\frac{3}{4}$ -in. inlet, $\frac{3}{4}$ -in. outlet.

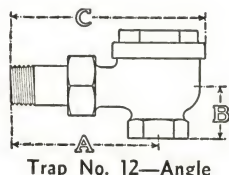
Note that while the $\frac{1}{2}$ -in. No. 12 and the $\frac{1}{2}$ -in. No. 2 have the same capacity, the body of the $\frac{1}{2}$ -in. No. 2 is larger due to the fact that it is tapped $\frac{3}{4}$ -in. on the outlet.

Action—Thermostatic in operation, the highly sensitive Thermoflex-Hydron Bellows remains off its seat while passing air and water through the body, but closes instantly against the passage of steam, thus assuring at all times a radiator filled with steam. The large area outlet port assures rapid and efficient drainage and also freedom from trouble caused by dirt and scale.

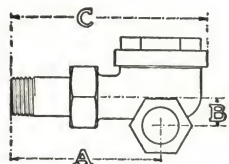
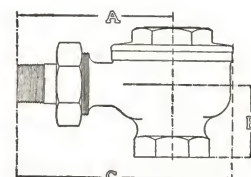
Specifications—Bodies are heavy all-bronze construction with union, fully nickel plated with highly polished trimmings. Cover and tailpiece are hot forged, having twice the strength of a casting and will not split or stretch. Thermostatic bellows is a full eight fold Thermoflex-Hydron, automatically Tested-During-Manufacture.



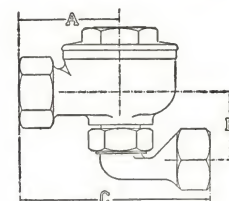
Trap No. 2—Straightway



Trap No. 12—Angle

Trap No. 12—L. H. Corner
(R. H. not shown)

Trap No. 2—Angle



Trap No. 2—Offset

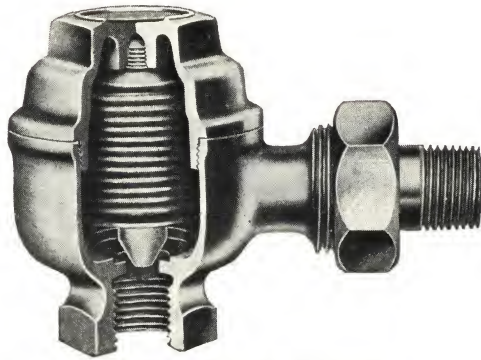
LIST PRICES, CAPACITIES AND DIMENSIONS

Size and No.	List Prices	Inlet	Outlet	Capacity, sq. ft.	A	B	C
$\frac{1}{2}$ -in.—No. 12 Angle.....	\$ 7.00	$\frac{1}{2}$	$\frac{1}{2}$	200	$3\frac{1}{4}$	$1\frac{1}{8}$	$4\frac{1}{4}$
$\frac{1}{2}$ -in.—No. 12 R.H. cor.....	7.00	$\frac{1}{2}$	$\frac{1}{2}$	200	$3\frac{1}{4}$	$\frac{5}{8}$	$4\frac{1}{4}$
$\frac{1}{2}$ -in.—No. 12 L.H. cor.....	7.00	$\frac{1}{2}$	$\frac{1}{2}$	200	$3\frac{1}{4}$	$\frac{5}{8}$	$4\frac{1}{4}$
$\frac{1}{2}$ -in.—No. 2 Angle.....	8.50	$\frac{1}{2}$	$\frac{3}{4}$	200	$3\frac{1}{4}$	$1\frac{1}{2}$	$4\frac{1}{2}$
$\frac{1}{2}$ -in.—No. 2 Straightway....	8.50	$\frac{1}{2}$	$\frac{3}{4}$	200	$3\frac{1}{4}$	$\frac{5}{8}$	$5\frac{1}{4}$
$\frac{1}{2}$ -in.—No. 2 Offset.....	8.50	$\frac{1}{2}$	$\frac{3}{4}$	200	$2\frac{1}{4}$	$1\frac{3}{4}$	$4\frac{1}{2}$
$\frac{3}{4}$ -in.—No. 2 Angle.....	12.00	$\frac{3}{4}$	$\frac{3}{4}$	500	$3\frac{1}{2}$	$1\frac{1}{2}$	$4\frac{3}{4}$
$\frac{3}{4}$ -in.—No. 2 Straightway....	12.00	$\frac{3}{4}$	$\frac{3}{4}$	500	$3\frac{1}{2}$	$\frac{5}{8}$	$5\frac{1}{2}$
$\frac{3}{4}$ -in.—No. 2 Offset.....	12.00	$\frac{3}{4}$	$\frac{3}{4}$	500	$2\frac{1}{4}$	$1\frac{3}{4}$	$4\frac{1}{2}$

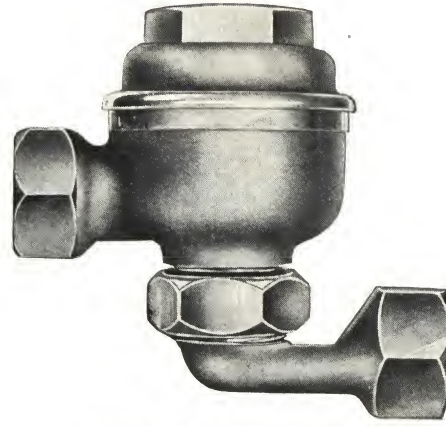
Capacities are given in sq. ft. of direct cast iron radiation or its equivalent.

Thermoflex

HIGH DUTY RADIATOR TRAP



Radiator Trap No. 3—Angle



Radiator Trap No. 3—Offset

Radiator Traps No. 3—Angle, Straightway and Offset

Specify For—Vacuum, vapor or pressure steam heating (up to 25 lb.)

- (1) For connection to every radiator.
- (2) For drips at bottom of risers.
- (3) For drips on drop-feed run-outs.
- (4) For return connection to Thermolier—the Grinnell Unit Heater (see Page 2 carrying schedule of traps for Thermoliers, typical connections, etc.).

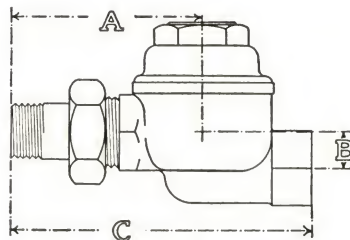
Action—High Duty Thermoflex Traps No. 3 are thermostatic in operation and are similar to, but have greater capacity than the No. 12 and No. 2 Traps (see Page 4), as will be noted by comparison of the tables at bottom of the pages.

They can be used for special conditions where the service is continuously severe and meet the demands of those

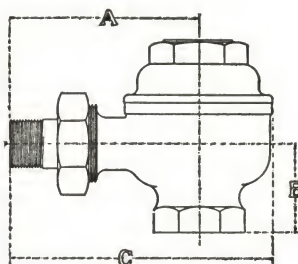
engineers who, regardless of price, want over-capacity together with an article which will give super-service.

Specifications—Heavy all bronze body with union. Fully nickel plated with highly polished trimmings. Hot forged union nut which will not split or stretch. Full twelve-fold Hydron Bellows, automatically Tested-During-Manufacture.

No. 3 Offset Trap—Attention is called to the special patented feature of the No. 3 Offset Trap. The union swivel connection being placed on the discharge side of the trap enables return piping to be connected to trap from any angle desired. Connection is made on inlet end with a nipple. This offset feature is also available for the No. 2 Radiator Trap shown on Page 4.



Trap No. 3—Straightway

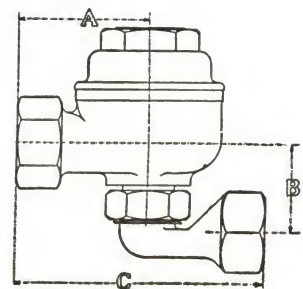


Trap No. 3—Angle

LIST PRICES, CAPACITIES AND DIMENSIONS

Size and No.	List Prices	Inlet	Out-let	Capacity, sq. ft.	A	B	C
½-in.—No. 3 Angle	\$10.00	½	¾	350	3¼	1½	4½
½-in.—No. 3 Straightway	10.00	½	¾	350	3¼	¾	5¼
½-in.—No. 3 Offset	10.00	½	¾	350	2¼	1½	4½
¾-in.—No. 3 Angle	13.50	¾	¾	800	3½	1½	4¾
¾-in.—No. 3 Straightway	13.50	¾	¾	800	3½	¾	5½
¾-in.—No. 3 Offset	13.50	¾	¾	800	2¼	1½	4½

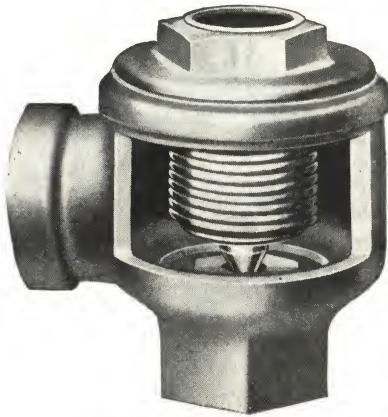
Capacities are given in sq. ft. of direct cast iron radiation or its equivalent.



Trap No. 3—Offset

Thermoflex IRON BODY TRAP

No. 4



Iron Body Trap No. 4

Specify For—Vacuum, vapor or pressure steam heating (up to 25 lb.). On drips of supply mains and risers, pipe coils, Thermoliers (the Grinnell Unit Heaters), unit ventilators, etc. Also for return connection to dryer coils, process kettles and for other industrial uses where pressures

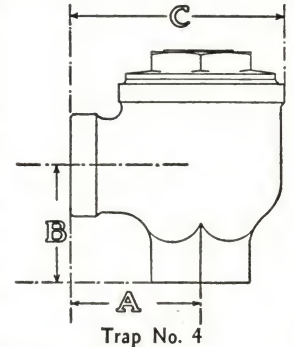
of steam used do not exceed 25 lb. There are many places in heating and industrial steam work where this I. B. (Iron Body) Trap at a lower price, but with all of the other valuable features of the No. 3 High Duty Trap (shown on Page 5), will be found most satisfactory.

Models—One pattern, angle only *without* union and in three sizes, $\frac{3}{4}$, 1 and $1\frac{1}{4}$ -in. inlet and outlet, respectively.

Action—Thermostatic in action the same as the No. 3

High Duty Radiator Trap and with same capacity for the $\frac{3}{4}$ -in. size; the 1 and $1\frac{1}{4}$ -in. sizes have correspondingly greater capacities. This I. B. Trap and also the No. 3 High Duty Trap with their extra long (12-fold) bellows have high lift which, combined with the large orifice, provide not only unusual capacity but freedom from dirt and scale troubles.

Specifications—Cast iron body, finished in gray lacquer, with bronze cap and inserted renewable bronze seat in body. Full twelve-fold Thermoflex-Hydron Bellows, automatically Tested-During-Manufacture.



Trap No. 4

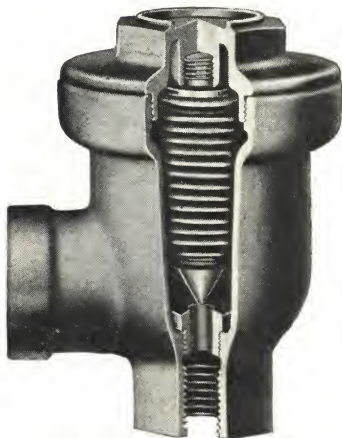
LIST PRICES, CAPACITIES AND DIMENSIONS—NO. 4

Size and No.	List Prices	Inlet	Outlet	Capacity sq. ft.	A	B	C
$\frac{3}{4}$ -in.-No. 4	\$11.00	$\frac{3}{4}$	$\frac{3}{4}$	800	$2\frac{1}{4}$	2	$3\frac{3}{4}$
1 -in.-No. 4	16.75	1	1	1350	$2\frac{1}{2}$	$2\frac{3}{8}$	$4\frac{1}{4}$
$1\frac{1}{4}$ -in.-No. 4	20.00	$1\frac{1}{4}$	$1\frac{1}{4}$	1800	$2\frac{3}{4}$	$2\frac{3}{4}$	$4\frac{1}{2}$

Capacities are given in sq. ft. of direct cast iron radiation or its equivalent.

HIGH PRESSURE TRAP

No. 100



High Pressure Trap No. 100

fore, long life. Small in size, light in weight and easily installed.

Models—One pattern, angle only without unions. Three sizes, $\frac{1}{2}$, $\frac{3}{4}$ and 1-in. inlet and outlet respectively. All fully nickel plated.

Action—Thermostatic in operation, closing against escape of steam and allowing free venting and rapid draining.

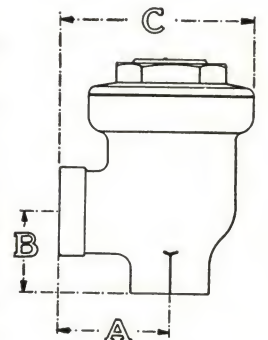
Caution—These traps being thermostatic in operation must always be installed so that they discharge into a return line or receiver which is vented to atmosphere.

Specify For—Working steam pressures from 25 to 125 lb. for use on hospital sterilizers, kitchen equipment, laundry machinery, vulcanizers, drying ovens and kilns, street steam service, Thermoliers, etc. This thermostatic type of trap is rapidly growing in use for these working pressures, because of simplicity of working parts and operation, and there-

They will not operate with a back pressure in the return line or against a head.

Not suitable for use where the total steam temperature exceeds 400° F. When discharging into a vacuum return, provision should be made for properly cooling the condensate.

Specifications—Extra large bodies with stainless steel renewable seats, fully nickel plated. Special Thermoflex-Hydron Bellows automatically Tested-During-Manufacture and fitted with a nitrided steel valve which will not rust and cannot wear. Can also be furnished with unions, chromium plated, polished nickel, etc., at extra cost.



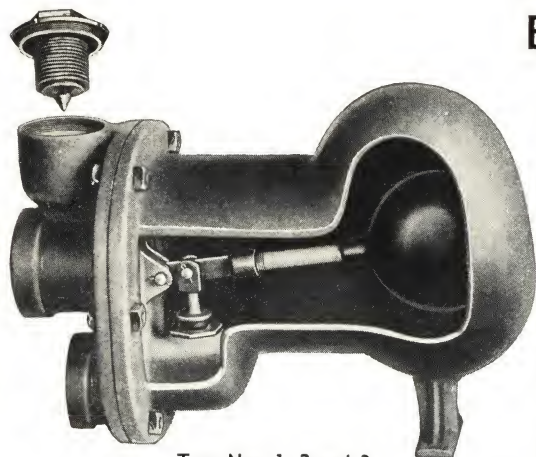
Trap No. 100

LIST PRICES, CAPACITIES AND DIMENSIONS—NO. 100

Size	List Prices		Inlet	Outlet	Capacity lb. per hr.	A	B	C
	Plain nickel	Polished nickel or chromium						
$\frac{1}{2}$	\$15.00	\$16.50	$\frac{1}{2}$	$\frac{1}{2}$	500	$1\frac{3}{4}$	$1\frac{1}{4}$	3
$\frac{3}{4}$	20.00	21.50	$\frac{3}{4}$	$\frac{3}{4}$	650	$2\frac{1}{4}$	2	$3\frac{3}{4}$
1	25.00	26.50	1	1	800	$2\frac{1}{2}$	$2\frac{3}{4}$	$3\frac{7}{8}$

Above capacities are given in lb. of water per hr. at 25 lb. pressure.

Thermoflex BLAST TRAPS



Trap Nos. 1, 2 and 3

etc.; especially for handling large quantities of condensate.

Models—No. 0 differs from Nos. 1, 2 and 3 in shape of body

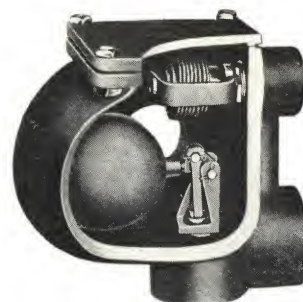
Specify For—All types of unit heaters, cast iron and light weight types of hot blast radiation; hot water storage tanks and generators, large supply mains and risers, dryer coils,

only. All sizes made in two pressure ranges, 0—25 lb. and 25—100 lb.

Action—Is combined float and thermostatic, water being normally handled by large capacity ball float and valve and air vented through thermostatic by-pass. In flood conditions water is also handled through by-pass. The Thermoflex-Hydron Bellows on by-pass prevents air binding of trap, allows free and rapid venting and no escape of steam into return line.

Specifications—Cast iron bodies with all working parts of bronze with high test seamless copper ball floats.

Bolted-on heads, easily accessible for inspection and cleaning.

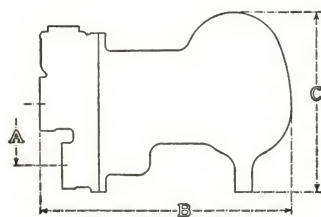


Trap No. 0

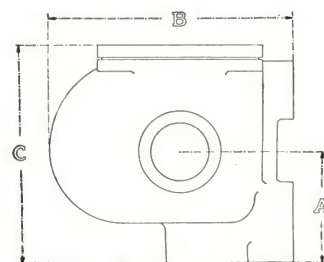
LIST PRICES, CAPACITIES AND DIMENSIONS

No.		List Prices		In-let	Out-let	Ca- pacity	A	B	C
0-25 lbs.	25-100 lbs.	0-25 lbs.	25-100 lbs.						
0	0-1	\$30.00	\$35.00	2-1¼	2-1¼	650	3	6½	6
1	1-1	60.00	65.00	1	¾	1000	3½	14½	10
2	2-1	70.00	75.00	1¼	1	2000	3½	17½	10
3	3-1	85.00	90.00	1½	1¼	3000	3½	20½	10

Capacities given in lb. of water per hr. at 2 lb. pressure. Higher pressures give resultant higher capacities.

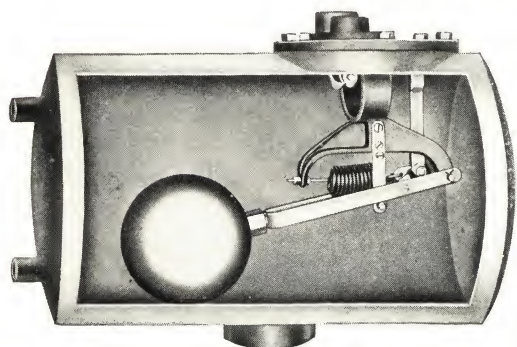


Trap Nos. 1, 2 and 3



Trap No. 0

ALTERNATORS—VENT TRAPS



Alternator

Specify—The Alternator and Vent Trap, in combination on every vapor heating system to insure positive return of water to boiler under pressure conditions. Usually one Alternator is installed per

job, but several Vent Traps may be used as deemed necessary for rapid venting according to layout.

Models—Alternator is made in one model and five sizes. Vent Trap in one model and two sizes.

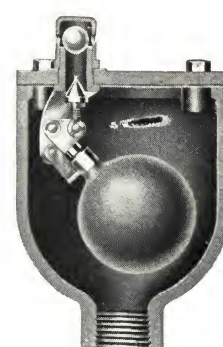
Action—The accumulation of condensate in returns and in alternator body, due to a pressure on boiler, causes float to

rise and at its high point opens live steam valve with a snap action, instantly equalizing pressure in alternator and allowing water to flow by gravity to boiler. As float drops to low position, it snaps closed the steam valve and opens vent of Alternator allowing Alternator to again fill. This is repeated so long as pressure on boiler continues. Meanwhile the Vent Trap is constantly venting air and closes should water reach it. It prevents return of air, once vented, allowing at times a vacuum to be carried in returns.

Specifications—Alternators have steel bodies on all sizes. All working parts are bronze or stainless steel and design permits entire mechanism to be removed with head, allowing easy access.

Bodies tapped for water gauges. Gauges furnished extra on order. Vent Traps have cast iron bodies with bronze working parts.

Seamless high test copper ball floats used in both.

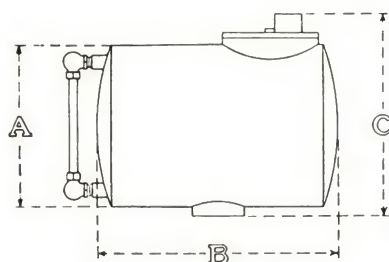


Vent Trap

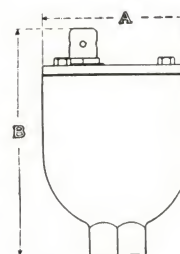
LIST PRICES, CAPACITIES AND DIMENSIONS

Alternators						Vent Traps								
No.	List Price	Steam		Water tapping, in.	Ca-pacity	Dimen., in.			No.	List Price	Tapping, in.	Ca-pacity	D'imen. in.,	
		In-let, in.	From boiler, in.			A	B	C					A	B
0	\$ 65.00	$\frac{3}{4}$	1	$1\frac{1}{4}$	1000	9	14	*	30	\$20.00	$\frac{3}{4}$	800	$2\frac{1}{2}$	4
1	100.00	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2500	$10\frac{1}{2}$	$16\frac{1}{2}$	13					$2\frac{1}{2}$	4
2	175.00	1	$1\frac{1}{2}$	2	6000	$12\frac{1}{2}$	$18\frac{1}{2}$	15					$2\frac{1}{2}$	4
3	300.00	$1\frac{1}{2}$	2	$2\frac{1}{2}$	12000	$16\frac{1}{2}$	$21\frac{1}{2}$	$22\frac{1}{2}$	40	28.00	1	5000	$4\frac{1}{2}$	7
4	500.00	$1\frac{1}{2}$	$2\frac{1}{2}$	3	20000	$20\frac{1}{2}$	$24\frac{1}{2}$	$26\frac{1}{2}$					$4\frac{1}{2}$	7

Capacities are given in sq. ft. of direct cast iron radiation or equivalent. Capacities of Alternators are based on bottom of same being 9 in. above water line. *No. 0 Alternator has steam and vent connections on end of tank (not illustrated).



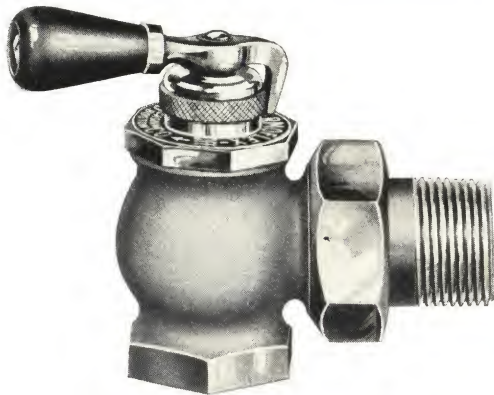
Alternator



Vent Trap

Thermoflex

PACKLESS RADIATOR INLET VALVES



Inlet Valve No. 10—Lever Handle

Handle and Wheel Handle. The No. 10 and No. 11 Valves are identical, except for handle. Either lever or wheel is furnished as desired at same price.

Three body styles—Angle, Right Hand Corner and Left Hand Corner.

Specify for—All types of direct radiators on vapor, vacuum and low pressure heating systems on the supply end of each radiator.

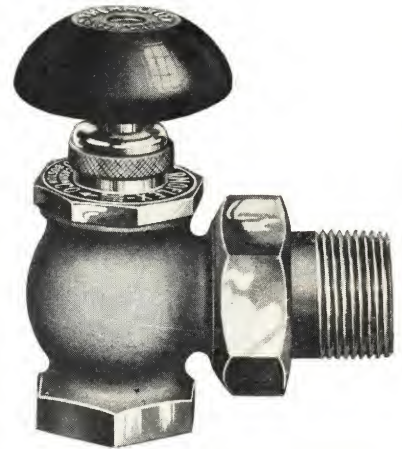
Models—Two models as illustrated, Lever

Action—Formanual control only. Will fully open or close with less than one full turn of the lever or wheel.

Specifications—All bronze construction, fully nickel plated with highly polished trimmings. Large dial plate, easily read.

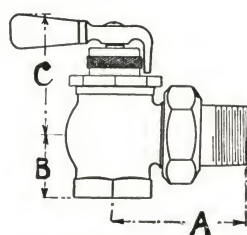
Non-heating levers and wheels. Note the low bonnet construction which gives a very pleasing appearance.

Special Equipment—The No. 10 and No. 11 Valves can also be furnished with lock shields and various types of extended handles and stems.



Inlet Valve No. 11—Wheel Handle

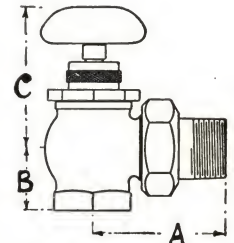
LIST PRICES, CAPACITIES AND DIMENSIONS



No. 10—Angle Pattern

Size	List Prices		Capacity Nos. 10 & 11	No. 10 Angle			No. 11 Angle		
	Nos. 10 & 11 Angle	Nos. 10 & 11 R.H., L.H.		A	B	C	A	B	C
1/2	\$4.55	\$ 6.70	0—30	2 3/4	1 1/8	2 1/4	2 3/4	1 1/8	2 3/4
3/4	5.30	7.45	31—60	2 3/4	1 1/8	2 1/4	2 3/4	1 1/8	2 3/4
1	6.25	8.00	61—120	3 1/8	1 3/8	2 3/8	3 1/8	1 3/8	2 7/8
1 1/4	7.85	11.50	121—200	3 1/2	1 1/2	2 3/4	3 1/2	1 1/2	3 1/4

Capacities are given in sq. ft. of direct cast iron radiation with a pressure at the valve of 8 oz. A higher pressure on the supply or a vacuum on the return will give correspondingly higher capacities.



No. 11—Angle Pattern

SPECIAL ATTACHMENTS FOR PACKLESS RADIATOR INLET VALVES

Below we show Thermoflex Packless Inlet Valves with four types of Special Attachments:

No. 10-1. Standard Lock Shield Pattern.

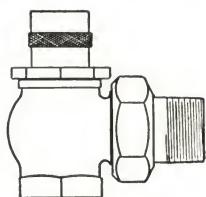
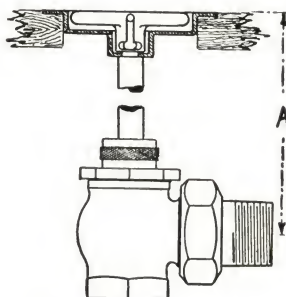
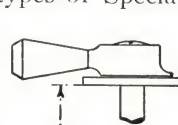
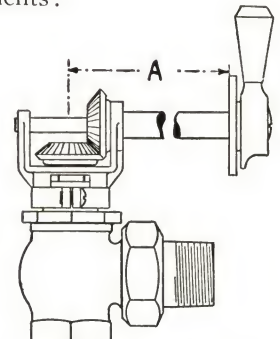
Nos. 10-2 and 11-2. Standard Vertical Extension.

No. 10-3. Special drop wheel which is flush with top of window seat or sill. Wheel is lifted up to operate valve and will automatically drop to flush position when released.

Nos. 10-4 and 11-4. Gear driven, 90 deg. extension where lever or wheel is desired on vertical face of a panel or wall.

All types furnished complete ready for installation.

Note: Nos. 11-2 and 11-4 Wheel Handles, not shown.

Lock Shield Type
No. 10-1Flush Type Extension
No. 10-3Standard Vertical Extension
No. 10-290° Angle Extension
No. 10-4

LIST PRICES

Size	Angle				Right or Left Hand Corner			
	*10-1	10-2 11-2	10-3	10-4 11-4	*10-1	10-2 11-2	10-3	10-4 11-4
1/2	\$5.55	\$ 7.55	\$ 8.55	\$10.55	\$ 7.70	\$ 9.70	\$10.70	\$12.70
3/4	6.30	8.30	9.30	11.30	8.45	10.45	11.45	13.45
1	7.25	9.25	10.25	12.25	9.00	11.00	12.00	14.00
1 1/4	8.85	10.85	11.85	13.85	12.50	14.50	15.50	17.50

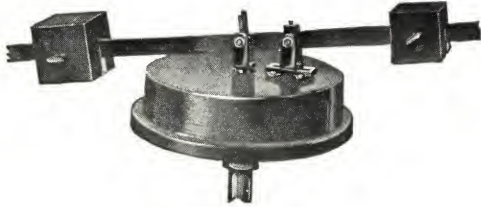
*Key for No. 10-1, list price, each \$0.75.

Note: Other special offset extensions, etc., can be furnished upon special order. Prices upon application.

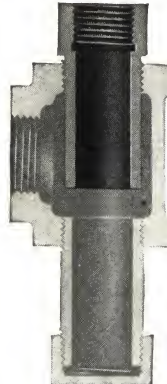
Important: Dimension "A" must be given with order.

Thermoflex

DAMPER REGULATORS—LIFT ADAPTERS—COMPOUND GAUGES



Damper Regulator



Lift Adapter



Compound Gauge

Specify—Thermoflex Damper Regulators for sensitive and accurate control of pressure on steam boilers using coal, oil or gas for fuel.

Thermoflex Lift Adapters for lifts in return lines on vacuum heating systems only.

Thermoflex Compound Gauges for accurate reading of pressures on steam boilers of all types.

Models—Damper Regulators in one model, and two sizes.

Lift Adapters in one model, seven sizes, in connection

with straight size cast iron screwed tees. Compound Gauges in three sizes.

Specifications—Damper Regulators have cast iron case, large area metal diaphragms, fully enclosed and are furnished complete with rods, weights, chains and pulleys.

Lift Adapters, cast iron. Outlet is tapped one size smaller than fitting size, except 4-in. size which is tapped 3 in. on outlet.

Compound Gauges have cast iron case, bronze ring with T-handle cock. Retard type and very accurate.

LIST PRICES AND DIMENSIONS

Damper Regulators			Compound Gauges		
No.	Size diaphragm	List Price	No.	Size dial	List price
90	7	\$42.00	80	5	\$15.00
91	10	50.00	81	7	40.00
			82	8½	56.00

Lift Adapters

No.	*List Price	Fitting size	Adapter outlet	No.	*List Price	Fitting size	Adapter outlet
70	\$3.00	1	¾	73	\$ 6.00	2	1½
71	4.00	1¼	1	74	7.00	2½	2
72	5.00	1½	1¼	75	8.00	3	2½
				76	10.00	4	3

*List price covers Lift Adapter only; does not include fittings shown.

Lift Adapters must be used with straight size cast iron Tees. Reducing Tees cannot be used.

STRAINERS

Specify For—All drip points in steam supply mains and risers before all drip traps; before all blast traps, reducing valves and governors, and at all points listed.

Models—Two models as illustrated and sizes as necessary to protect specialties from dirt and scale.

Specifications—Cast iron bodies with bronze screens or baskets, screwed or flanged. Also with special screens or baskets of monel, stainless steel, etc., at extra cost.

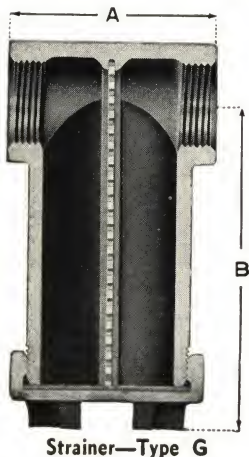
LIST PRICES AND DIMENSIONS

Type G (screw end only)

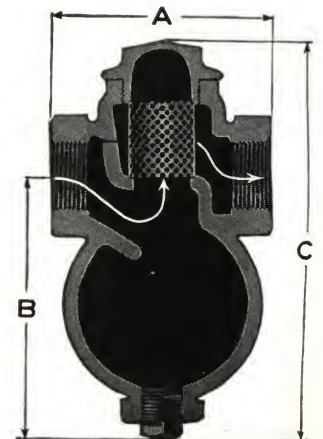
Size	List Price	A	B	Size	List Price	A	B
½	\$4.25	2¼	3¼	1½	\$ 7.00	4¾	7½
¾	4.70	3	4¼	2	11.80	5½	9½
1	5.50	3½	5½	2½	18.00	6½	11½
1¼	5.85	4	6½	3	30.00	7¾	13¾

Type F

Screw end					Flanged end (std.)						
Size	List Price	A	B	C	Size	List Price	A	B	C	Dia. flg.	
2½	\$ 50.00	8½	10½	16	3	\$ 75.00	11	11¼	16½	7½	
3	67.00	8½	10½	16	3½	100.00	12	12	18½	8½	
3½	92.00	10¾	12½	19½	4	125.00	13	12	18½	9	
4	117.00	10¾	12½	19½	5	150.00	15	15	23	10	
					6	210.00	16	16½	25¾	11	



Strainer—Type G



Strainer—Type F

Thermoflex

APPLICATIONS OF THERMOFLEX HEATING SPECIALTIES

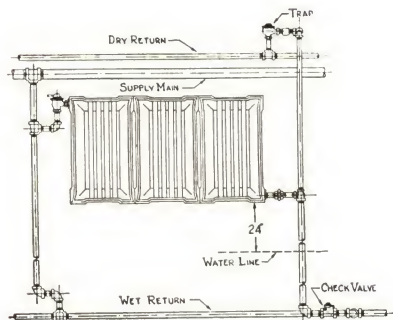


Fig. No. 1—Connections to Radiator Located Below Supply Main

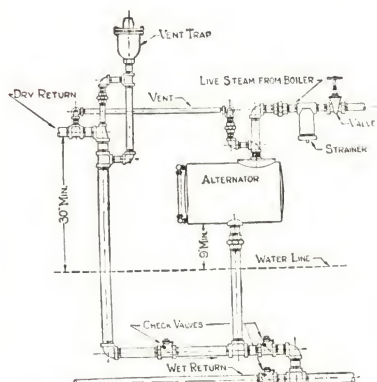


Fig. No. 2—Connections to Alternator and Vent Trap

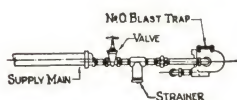


Fig. No. 4—Dripping End of Supply Main Through No. 0 Blast Trap. This Method Is Recommended on Vapor Systems Where a Dry Return Only Is Used

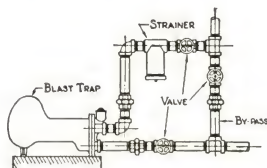


Fig. No. 6—By-pass Connections to Blast Trap

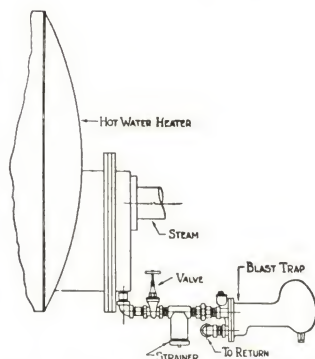


Fig. No. 7—Blast Trap Connections to Hot Water Heater

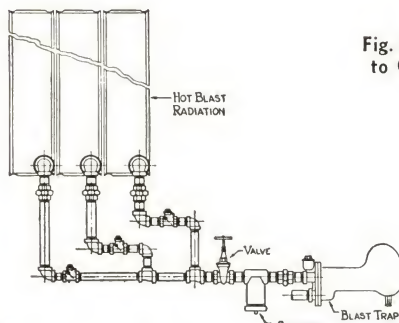


Fig. No. 8—Blast Trap Connections to an Indirect Hot Blast Heater

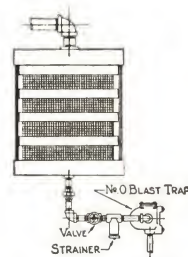


Fig. No. 9—Recommended Return Connections to Header to Header Type of Unit Heater

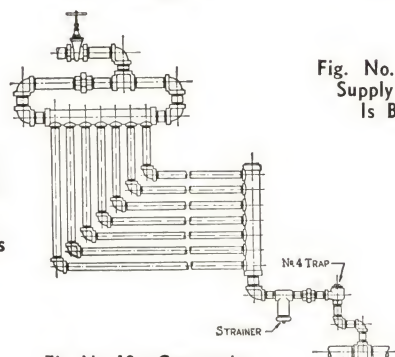


Fig. No. 10—Connections to Coils on Side Walls

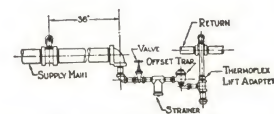


Fig. No. 11—Vacuum System—Dripping End of Supply Main to Return at Level of or Above Supply Main

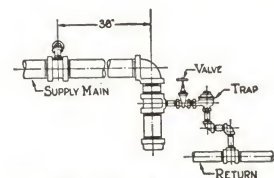


Fig. No. 12—Dripping End of Supply Main Where Return Is Below Supply Main

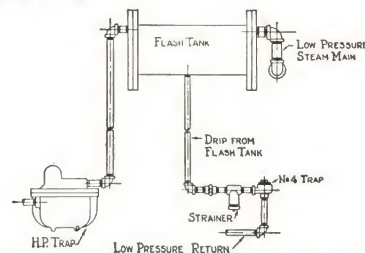


Fig. No. 14—Discharging High Pressure Trap to Low Pressure Return Using a Flash Tank

Further Information

Further information, including data sheets, illustrating the proper application of Thermoflex Specialties and heating systems, will be gladly supplied on application.

Other Grinnell Products

The Grinnell Company products also include Sprinkler Systems, Thermolier Unit Heaters, Equiflo Valves, Pipe Fittings, Fabricated Pipe and Adjustable Pipe Hangers. For these products see Manufacturers' Index.

Grinnell Service

A half century of experience stands in back of all Grinnell Products, the benefits of which we offer freely as consultants in any matter pertaining to the use of our products. At each of our sales offices will be found an engineering staff ready to aid in the solution of problems in the various fields of industry covered by the Grinnell Company.

